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Dear Mr Peter Vanderaa

Response to the QLD Cleantech Industry Development Strategy Issues Paper

The Clean Energy Council (CEC) is the peak body representing Australia's clean energy and energy efficiency industries.

Its priorities are to:

- create the optimal conditions in Australia to stimulate investment in the development and deployment of world's best clean energy technologies;
- develop effective legislation and regulation to improve energy efficiency; and
- work to reduce costs and remove all other barriers to accessing clean energy.

The CEC works with members and the government to identify and address the barriers to efficient industry development in the energy efficiency and stationary energy sector.

The clean energy industry and its members contribute to the generation of electricity using wind, hydro, solar, biomass, geothermal and ocean energy as well as the emerging technologies and service providers in the energy efficiency sector including solar hot water and cogeneration.

The CEC congratulates the Queensland Government on its commitment to developing a strategy for the cleantech industry. The CEC welcomes this opportunity to comment on the QLD Cleantech Industry Development Strategy (QCIDS) Issues Paper.

Policy Opportunities

With its diverse cleantech industry, abundant energy resources and its commitment to rapidly decarbonise energy supply in order to minimise the effects of climate change, Queensland is an ideal location to become a leader in the cleantech space. To transform to a low carbon economy will require the accelerated deployment of proven clean energy technologies in parallel with the accelerated development of new technologies that are clean, abundant and affordable. The QCIDS's definition of the cleantech industry needs to be broadened to include emerging technologies that have moved from the research laboratory into the field and are currently in the early demonstration to full scale demonstration period of development, not just proven technologies.

To achieve a cleantech industry in Queensland that is innovative, competitive and profitable, globally connected, contributes towards Queensland's economic growth through high-value green jobs and export income, any cleantech industry strategy needs to be deployed in a holistic way that is complemented by other national and state-based strategies and is consistent with other policies relating to energy and energy efficiency.

A comprehensive and coordinated strategy needs to include:

- Implementation of policies complementary to the national Renewable Energy Target to assist the deployment of emerging clean energy technologies such as large scale solar, wave and geothermal throughout the state.
- Effective strategies to address the challenges in accessing capital for the development and deployment of emerging cleantechs through grants, specific R & D funding, tax incentives and low interest loans.
- Advocacy for nationally consistent policies that promote harmonisation and easier delivery of measures between states such as a national feed-in tariff and a national market for energy efficiency.
- Expansion of the state's feed in tariff to encourage the uptake of distributed generation such as biomass, mini hydro and micro wind.
- Strong incentives and supportive regulation in the areas of new buildings, renovated buildings and retrofitting of existing buildings as well as minimum energy performance standards for new appliances to promote the uptake of energy efficiency technologies.

- A marketing strategy to educate the industry to understand the scale of transformation required to 2015 and beyond, and the opportunities this presents.
- A community engagement strategy to encourage consumer behaviour change to increase energy savings, as well as incentivising the uptake of cleantechs to assist this such as energy saving devices, energy storage systems and fuel cells. Providing consumers with the data and information they need to make informed decisions about their energy use is essential. Smart Meters can be utilised to provide accessible data so that users can better identify energy consumption changes and therefore energy saving opportunities.
- A strategy to identify and build the current and future skills required by the workforce to transition cleantechs from early R&D stage to widespread deployment phase. National training programs through universities and TAFEs, accreditation and verification measures supported by robust standards are required to promote a capable and responsive industry. The CEC has completed several reports on a workforce and training strategy which are also attached.
- Measures to address infrastructure and network constraints on the grid and barriers to the connection of renewable energy projects.

Mechanisms to assist Emerging Clean Energy Technologies

Accelerating clean technology development is about creating the optimal conditions to drive innovation. This requires two fundamental ingredients: abundance to stimulate innovation and competition to drive efficiency. The QCIDS needs to unlock the enormous potential of the cleantech industry by fast-tracking technology breakthroughs and making it more attractive for investors to back inherently risky R&D projects and companies. Developing new skills and expertise through enhanced innovation will underwrite the continued growth of a clean energy industry in Australia.

While the RET is effective in developing the market for mature renewable technologies, on its own it will not sufficiently accelerate development of clean technologies in the research, development and demonstration stages. In the absence of a carbon price to drive innovation and investment in those technologies, it is critical that support is provided to emerging technologies such as wave, geothermal, large scale solar, fuel cells and other energy efficiency technologies to assist them to progress from the drawing board to market.

The Clean Energy Council has commissioned reports by Ernst and Young and Andrew Wait from the University of Sydney (attached) which outline the policy support mechanisms Governments can adopt to support technologies at different stages of the commercialisation process.

Currently, the private level of investment in clean and emerging technologies in Australia is suboptimal; the benefits of developing these technologies exceed the private benefit captured by investors. With investment in cleantechs critical to building a stronger, more diversified, low carbon economy, these barriers to optimal investment need to be addressed.

Analysis by the University of Sydney¹ has shown three key market failures prevent the socially optimal level of investment in emerging cleantechs:

1. Private firms are unlikely to capture the full benefit generated by their investment
2. There is an inherent second mover advantage in R&D, if firms prefer to imitate rather than innovate they will delay investment
3. The price of energy does still not reflecting the full cost to society – this makes the traditional energy price artificially low when compared to the clean energy price, substantially reducing the incentive to invest in alternative clean technologies.

These factors combined makes government support a critical element to driving innovation and growth across the clean energy industry.

A recent report by Ernst and Young² found the main constraint to investment in cleantech in Australia is the cost of technology when compared with traditional technologies in the host industry. Other constraints include:

- The absence of an Australian market for cleantech
- Lack of patient capital
- Stronger investment attractiveness overseas
- Greater revenue risk with lower energy prices in the absence of a price on carbon
- Low investor awareness of technology risk

¹ Andrew Wait, 2010 - Investment in clean technologies as a public good: a discussion paper prepared for the Clean Energy Council.

² Ernst and Young 2010, Navigating the Valley of Death – Exploring mechanisms to finance emerging technologies in Australia

What can Government do to support emerging technologies?

There are four key phases clean technologies pass through before a mature technology is brought to market – Research and Invention, Prototype Development, Demonstration and Deployment (refer Figure 1). These stages are often referred to as ‘the valley of death’ and can make or break the commercial success of any given technology. Government support is critical during these stages, where capital investment may be too high for a venture capitalist and execution or technology risk may be too high for project finance investors².

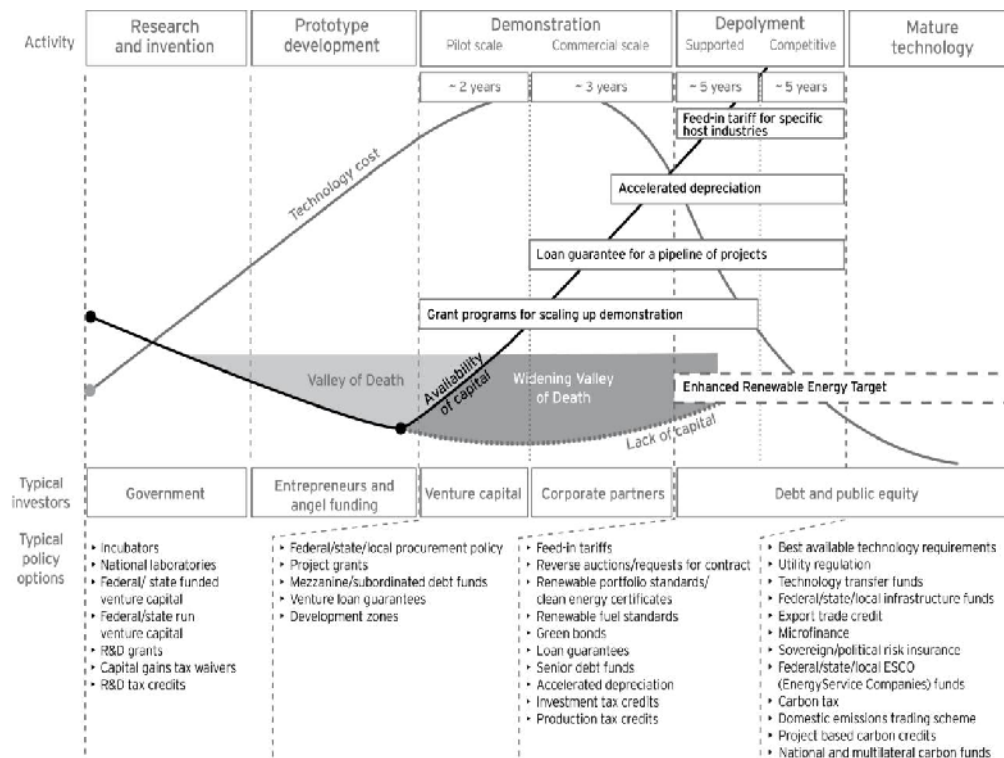


Figure 1 – scope of government action to support emerging cleantech investment. (Ernst and Young – Navigating the Valley of Death, p41.)

To address this inherent market failure Wait¹ found that Governments can:

1. Implement subsidies, grants, tax incentives or other incentive schemes to address the research and development investment externalities.
2. Design policies that encourage firms to innovate and be market leaders rather than imitators, weighting the relevant payoff towards innovation rather than imitation.
3. Deliver policy that ensures the price of carbon-intensive energy incorporates the social cost, making investment in clean technologies more attractive

Policies encouraging the development and deployment of clean technologies:

Stages 1 & 2: Research and invention, Prototype development

Renewable Technologies: Wave, biochar, nanotechnologies, solar efficiency technologies,

Policy Response:

Research and Development Grant Programs

While also being important at the demonstration and deployment phases of a project, cleantechs and investors have both indicated that Government grants remain critical in the research and invention phase of the project. Cleantechs are heavily reliant upon Governments and angel funding to foster ideas and get them off the drawing board.

Tax Incentives

The provision of tax incentives to support research and development is an important way Governments can drive research and development into clean technologies.

While the Federal Government currently operates a research and development tax credit scheme, the scheme could be expanded to provide more coverage for the cleantech sector. The current scheme restricts the availability of depreciation deductions on R&D assets, as an additional incentive the Federal Government could consider removing these restrictions. Increased eligibility for the scheme would also improve its effectiveness.

Facilitating the exploration and prospecting of natural resources like those undertaken in the development of wave and geothermal energy, Governments could grant immediate deductions for exploration-type expenditure incurred. This would be similar to existing exploration concessions that apply to the host industries.

Stage 3: Demonstration

Renewable Technologies: Wave, geothermal, solar power towers, large scale solar

Policy Response:

Emerging Technologies Loan Guarantee Program

Government support for early access to debt at commercial scale demonstration and deployment can be critical to gaining support from investors. A loan guarantee program similar to those operating in the USA (e.g. – the US Government's recent \$1.37b loan guarantee for a 400 MW CST plant), China and Japan would help Government take a more aligned role with the private sector and quarantine technology risk.

Stage 3 – cont. Renewable Energy Grant and Flagship Programs

Grant programs for demonstration projects are essential to helping cleantechs navigate the valley of death. The progression of these technologies relies heavily on access to upfront capital.

Programs targeted to address the changing risk profile of the cleantech from pilot scale to full scale demonstration are most effective. Ernst and Young 2010 found this is particularly relevant for the energy sector in the scale up of 0 to 10MW of generation capacity, due to the absence of revenue certainty.

While Government funds have been to date directed to the solar industry through the Solar Flagships Program, there is not at this stage equivalent support program for the wave and geothermal sectors. If Government's priority is to foster innovation across the broader clean energy industry, grant programs that are technology agnostic or spread across a range of sectors may be appropriate given the wealth of renewable resources in Australia. Any implementation of a Flagships Program should be pre-empted by an industry consultative process to ensure the end result promotes the optimal deployment of cleantechs.

Stage 4: Deployment

Renewable Technologies: Large scale solar thermal, Solar PV, Wind
Revenue subsidies

Addressing the revenue gap that often exists when cleantechs first progress to market is an important step in addressing externalities and encouraging competition, ultimately to drive down costs. In both Europe and the UK, revenue subsidies and regulation was identified as the key factor having the most impact on the growth of a cleantech.

In Australia a feed-in-tariff for emerging technologies coming to market is the preferred mechanism by both cleantechs and investors to attract private investment and industry partners. While feed-in-tariffs in Australia have to date been limited to small scale solar and wind, their application more broadly for technologies reaching commercialisation across the cleantech sector should receive serious consideration.

Accelerated depreciation

Allowing host industries to apply accelerated rates of depreciation to clean technologies can assist in their deployment.

Key ways the Federal Government could consider expanding tax incentives to better support clean tech growth in the deployment phase include:

1. Introducing a loading on existing depreciating rates for assets
2. Reducing the write off period for capital allowances by reducing or capping the effective lives of new and retrofitted cleantech assets

The adoption of these measures to support emerging technologies is crucial – not only in delivering on the Government's commitment to reducing greenhouse emissions, but to ensure Australia can benefit from a prosperous and growing clean tech industry.

Policy Measures to assist Renewable Energy Technologies

The Queensland Government must also do more to address barriers to the deployment of both small³ and large scale renewable energy projects and the uptake of distributed generation.

An analysis to determine the current and potential constraints on the transmission network for distributed generation and for larger scale projects would be of great benefit to address connection barriers. The CEC is of the opinion that there is significant potential in co-ordinating the planning of transmission lines with generators and between the States to capture the co-location and economy of scale benefits of building energy transmission infrastructure. This is particularly important with regard to the remoteness of some of Queensland's renewable energy resources. While Queensland has an excellent solar resource, it lacks transmission infrastructure in those areas where the solar resource is most prominent. The Townsville-Mt Isa Transmission Line, for example, could create an incentive for cleantech providers to deploy their technology in surrounding regions by addressing the current lack of available infrastructure and costs of connection to the grid.

The Queensland Government being a large user of electricity, could consider purchasing a certain percentage of electricity consumed from renewables. This would greatly enhance a renewable project's ability to obtain a Power Purchase Agreement which is often imperative to the viability of a project.

The Government needs to address policy and cost barriers to the deployment of smaller scale distributed renewable energy projects. Cogeneration and trigeneration are vital methods of enhancing a building's energy efficiency.

Current connection rules act as a disincentive to the deployment of such projects and the rules need to be altered to make it easier to connect projects. Likewise the approvals process for installing renewable energy equipment needs to be simplified and standardised across jurisdictions to encourage organisations to make such an investment. The CEC recommends that Queensland Government undertake a review of the barriers to the uptake of cogeneration and trigeneration plants and steps to streamline the planning approval process.

Additionally, supporting the establishment of a demonstration project to trial the applicability of either co-generation or tri-generation technology on a precinct-size scale would be a commendable initiative by the Queensland Government.

With abundant biomass resources, bioenergy has a significant part to play in contributing to Queensland's transition to a lower carbon economy. A waste strategy that allows for maximum opportunities for the generation of electricity from waste is essential.

³ Small scale refers to sub-megawatt systems.

Thermal energy resulting from a thermal conversion process (e.g. bioenergy) or a direct natural resource (e.g. geothermal) is a significant resource that is often lacking recognition in the policy space. This resource can be harnessed and turned into a valuable energy source for both heating and cooling. Overall efficiency of an energy production process which produces heat as a byproduct can be significantly increased if the heat is captured and used. This is evident in the cogeneration plants operated by the sugar industry. The Queensland Government should explore the role that a dedicated incentive for the production and use of low carbon heating and cooling can play in exploiting this resource.

Closing

The Queensland Government should utilise peak industry associations to further discuss how cleantechs can contribute to Queensland's transition to a low carbon economy and to allow for collaboration and networking within and across the cleantech sectors. As the peak body representing Australia's clean energy and energy efficiency industries, the Clean Energy Council looks forward to working with the Queensland Government on developing an innovative and robust cleantech sector. If you have any further questions please contact Lauren Solomon via telephone on 03 99294100 or by email: Lauren@cleanenergycouncil.org.au

Yours sincerely



Russell Marsh

Policy Director